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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/544,274	04/06/2000	Joseph Mulavelil George	AUS000185US1	7599

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Duke W Yee
Carstens Yee & Cahoon LLP
PO Box 802334
Dallas, TX 75380

EXAMINER	
LY, ANH	

ART UNIT	PAPER NUMBER
2172	

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8

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/544,274	GEORGE, JOSEPH MULAVELIL	
	Examiner	Art Unit	
	Anh Ly	2172	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *12 February 2003* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-12 and 14-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-12 and 14-48* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
4) ☒ Interview Summary (PTO-413) Paper No(s). *8* .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed on 02/12/2003 and interview on 03/14/2003 with respect to claims 1-48 have been considered but are moot in view of the new ground(s) of rejection.

2. Claims 2 and 13 have been cancelled (page #7 02/12/03).

3. Claims 1, 3-12 and 14-48 are pending in this application.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 1, 3-4, 7-12, 14-15, 17-19, 25-26, 31-34, 39-42, 44, 46-48 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,385,618 issued to Ng et al. (herein Ng) in view of US Patent No. 6,418,448 issued to Sarkar.

With respect to claim 1, Ng discloses determining a structure of the relational database (database schema of a relational database: col. 4, lines 23-27 and lines 35-36), wherein determining the structure of the relational database includes invoking a database meta-information class object associated with the relational database (database metadata is called by the tool via JDBC: col. 7, lines 60-67 and col. 8, lines 1-18; also see fig. 9); determining a delete action based on the structure of the relational database and generating database modification commands based on the determined delete action and sending the database modification commands (abstract, col. 2, lines 36-49; col. 4, lines 22-54; also see col. 3, lines 35-38 and lines 45-59).

As to the limitation, "a relational database server wherein the relational database server delete the object data from relational database," Ng Gregg does not explicitly indicate that the relational database server in Java via JDBC interface.

However, Sarkar discloses java classes are loaded in the database server (col. 11, lines 45-55; also see col. 6, lines 7-22).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Ng with the teachings of Sarkar so as to obtain database server of a object relational database locating of elements inside component relational schema with Java classes (col. 6, lines 13-15). This combination would provide a relational database having database server in the Java classes as argument for the interface of JDBC with SQL in the multi-tier client/server environment (Sarkar – col. 6, lines 20-28) and it is carrying an object SQL query for execution within one or more object relational schema (Sarkar – col. 6, lines

58-65 and querying and viewing multiple object relational schema in the large existing database system (Sarkar – col. 7, lines 10-14) in the deletion of object in the relational database environment.

With respect to claim 3, Ng discloses a method as discusses in claim 1.

As to the limitation, "wherein the database meta-information class object encapsulates a dependency structure of the relational database," Ng Gregg does not explicitly indicate that the object classes are encapsulated from the relational database.

However, Sarkar discloses java classes encapsulating the relational data (col. 6, lines 12-20).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Ng with the teachings of Sarkar so as to obtain database server of a object relational database locating of elements inside component relational schema with Java classes (col. 6, lines 13-15). This combination would provide a relational database having database server in the Java classes as argument for the interface of JDBC with SQL in the multi-tier client/server environment (Sarkar – col. 6, lines 20-28) and it is carrying an object SQL query for execution within one or more object relational schema (Sarkar – col. 6, lines 58-65 and querying and viewing multiple object relational schema in the large existing database system (Sarkar – col. 7, lines 10-14) in the deletion of object in the relational database environment.

With respect to claims 4 and 7, Ng discloses wherein the database meta-information class object further includes a delete action identifier for each

dependent table of a plurality of tables in the relational database and wherein the database meta-information class object is generated based on a file describing the structure and delete actions for tables in the relational database (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17; also see fig. 9).

With respect to claim 8, Ng discloses a method as discusses in claim 1.

As to the limitation, "wherein the file is an Extended Markup Language file, " Ng Gregg does not explicitly indicate that the XML file or document for metadata or constructing arbitrary types by SQL queries.

However, Sarkar discloses Extensible Markup Language (XML) (col. 5, lines 54-60).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Ng with the teachings of Sarkar so as to obtain database server of a object relational database locating of elements inside component relational schema with Java classes (col. 6, lines 13-15). This combination would provide a relational database having database server in the Java classes as argument for the interface of JDBC with SQL in the multi-tier client/server environment (Sarkar – col. 6, lines 20-28) and it is carrying an object SQL query for execution within one or more object relational schema (Sarkar – col. 6, lines 58-65 and querying and viewing multiple object relational schema in the large existing database system (Sarkar – col. 7, lines 10-14) in the deletion of object in the relational database environment.

With respect to claims 9-11, Ng discloses wherein the file is further generated based on user input to override default delete action identifiers in the file and wherein the file is further generated based on user input to insert one or more delete constraints in the file for one or more of the tables in the relational database; and commands are SQL statements (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17; also see fig. 9; and col.7, lines 16-26).

Claim 12 is essentially the same as claim 1 except that it is directed to a system rather than a method ('618 of database schema of a relational database: col. 4, lines 23-27 and lines 35-36; database metadata is called by the tool via JDBC: col. 7, lines 60-67 and col. 8, lines 1-18; also see fig. 9; abstract, col. 2, lines 36-49; col. 4, lines 22-54; also see col. 3, lines 35-38 and lines 45-59; and '448 of col. 11, lines 45-55; also see col. 6, lines 7-22), and is rejected for the same reason as applied to the claim 1 hereinabove.

Claim 14 is essentially the same as claim 3 except that it is directed to a system rather than a method (col. 6, lines 12-20), and is rejected for the same reason as applied to the claim 3 hereinabove.

Claims 15 and 17 are essentially the same as claims 4 and 7 except that they are directed to a system rather than a method (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17; also see fig. 9), and are rejected for the same reason as applied to the claims 4 and 7 hereinabove.

Claims 18-19 are essentially the same as claims 9-10 except that they are directed to a system rather than a method (col. 3, lines 62-67 and col. 7, lines 60-67 and

col. 8, lines 1-17; also see fig. 9), and are rejected for the same reason as applied to the claims 9-10 hereinabove.

With respect to claims 25-26, Ng discloses wherein the file is further generated based on user input to override default delete action identifiers in the file and wherein the file is further generated based on user input to insert one or more delete constraints in the file (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17; also see fig. 9).

With respect to claim 31, Ng discloses wherein the means for determining the structure of the relational database and the means for determining the one or more delete actions determine the structure and one or more delete actions from a file describing the structure and delete actions of tables in the relational database (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17)..

With respect to claim 32, Ng discloses wherein the file is generated based on Java Database Connectivity (JDBC) database metadata associated with the relational database (col. 7, lines 60-67).

Claims 33-34 are essentially the same as claims 25-26 except that it is directed to a system rather than a method (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17; also see fig. 9), and is rejected for the same reason as applied to the claims 25-26 hereinabove.

With respect to claim 39, Ng discloses wherein the means for determining the structure of the relational database and the means for determining the one or more delete actions determine the structure and one or more delete actions from a file

describing the structure and delete actions of tables in the relational database (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17).

Claim 40 is essentially the same as claim 32 except that it is directed to a computer product rather than an apparatus (col. 7, lines 60-67), and is rejected for the same reason as applied to the claim 32 hereinabove.

Claims 41-42 are essentially the same as claims 25-26 except that it is directed to a computer program product rather than a method (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17), and is rejected for the same reason as applied to the claims 25-26 hereinabove.

With respect to claim 44, Ng discloses a program product as discusses in claim 43.

As to the limitation, "wherein the database meta-information class object encapsulates a dependency structure of the relational database," Ng Gregg does not explicitly indicate that the object classes are encapsulated from the relational database.

However, Sarkar discloses java classes encapsulating the relational data (col. 6, lines 12-20).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Ng with the teachings of Sarkar so as to obtain database server of a object relational database locating of elements inside component relational schema with Java classes (col. 6, lines 13-15). This combination would provide a relational database having database server in the Java classes as argument for the interface of JDBC with SQL in the multi-tier

client/server environment (Sarkar – col. 6, lines 20-28) and it is carrying an object SQL query for execution within one or more object relational schema (Sarkar – col. 6, lines 58-65 and querying and viewing multiple object relational schema in the large existing database system (Sarkar – col. 7, lines 10-14) in the deletion of object in the relational database environment.

With respect to claims 47-47, Ng discloses wherein the file is further generated based on user input to override default delete action identifiers in the file and wherein the file is further generated based on user input to insert one or more delete constraints in the file for one or more of the tables in the relational database (col. 4, lines 45-67, col. 6, lines 42-64 and col. 7, lines 9-67).

6. Claims 5-6, 16, 22-23, 29-30, 37-38 and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,385,618 issued to Ng et al. (herein Ng) in view of US Patent No. 6,418,448 issued to Sarkar and in view of US Patent No. 4,947,320 issued to Crus et al. (hereinafter Crus).

With respect to claims 5-6, Ng in view of Sarkar discloses a method of deleting object data from a relational database as discussed in claim 1.

As to limitation, "wherein the delete action identifier is one of cascade delete and nullify columns delete and wherein the delete action is one of cascade delete and nullify columns delete," Ng in view of Sarkar does not explicitly indicate that the cascade and nullify column delete based on the relational database schema.

However, Crus discloses delete action identifier such as cascade delete, delete set null as well as nullity columns delete as claimed (col. 5, lines 3-67, col. 6, lines 1-36, col. 16, lines 60-67, col. 17, lines 1-67 and col. 18, lines 1-18).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Ng in view of Sarkar with the teachings of Crus so as to obtain a method of deleting object data from a relational database. This combination would provide an improved method for enforcing referential constraints. The method is useful in any database management system in which records of data are manipulated in response to operations, which may affect multiple records (Crus – col. 3, lines 4-15) in the deletion of object from an object-relational system in a customizable and database independent manner environment.

Claim 16 is essentially the same as claim 5 except that it is directed to a system rather than a method (col. 5, lines 3-67 and col. 6, lines 1-36), and is rejected for the same reason as applied to the claim 5 hereinabove.

With respect to claims 22-23, Ng in view of Sarkar discloses a method of deleting object data from a relational database as discussed in claim 20.

As to the limitation, "wherein the delete action identifier is one of cascade delete and nullify columns delete and wherein the delete action is one of cascade delete and nullify columns delete," Ng in view of Sarkar does not explicitly indicate that the cascade and nullify column delete based on the relational database schema.

However, Crus discloses delete action identifier such as cascade delete, delete set null as well as nullity columns delete as claimed (col. 5, lines 3-67, col. 6, lines 1-36, col. 16, lines 60-67, col. 17, lines 1-67 and col. 18, lines 1-18).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Ng in view of Sarkar with the teachings of Crus so as to obtain a method of deleting object data from a relational database. This combination would provide an improved method for enforcing referential constraints. The method is useful in any database management system in which records of data are manipulated in response to operations, which may affect multiple records (Crus – col. 3, lines 4-15) in the deletion of object from an object-relational system in a customizable and database independent manner environment.

Claims 29-30 are essentially the same as claims 22-23 except that it is directed to a system rather than a method (col. 5, lines 3-67, col. 6, lines 1-36, col. 16, lines 60-67, col. 17, lines 1-67 and col. 18, lines 1-18), and is rejected for the same reason as applied to the claims 22-23 hereinabove.

Claims 37-38 are essentially the same as claims 22-23 except that it is directed to a computer program product rather than a method (col. 5, lines 3-67, col. 6, lines 1-36, col. 16, lines 60-67, col. 17, lines 1-67 and col. 18, lines 1-18), and is rejected for the same reason as applied to the claims 22-23 hereinabove.

With respect to claim 45, Ng in view of Sarkar discloses a method of deleting object data from a relational database as discussed in claim 43.

As to the limitation, "wherein one or more delete actions is at least one of cascade delete and nullify columns delete," Ng in view of Sarkar does not explicitly indicate that the cascade and nullify column delete based on the relational database schema.

However, Crus discloses delete action identifier such as cascade delete, delete set null as well as nullity columns delete as claimed (col. 5, lines 3-67 and col. 6, lines 1-36).

Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to combine the teachings of Ng in view of Sarkar with the teachings of Crus so as to obtain a method of deleting object data from a relational database. This combination would provide an improved method for enforcing referential constraints. The method is useful in any database management system in which records of data are manipulated in response to operations, which may affect multiple records (Crus – col. 3, lines 4-15) in the deletion of object from an object-relational system in a customizable and database independent manner environment.

7. Claims 20-21, 24, 27-28, 35-36, 43 and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 6,385,618 issued to Ng et al. (herein Ng).

With respect to claim 20, Ng discloses determining a structure of the relational database; determining one or more delete actions based on the structure of the relational database; and generating the class object based on the determined structure

and the determined one or more delete actions (col. 8, lines 64-67 and col. 9, lines 11-20; database schema of a relational database: col. 4, lines 23-27 and lines 35-36; abstract, col. 2, lines 36-49; col. 4, lines 22-54; also see col. 3, lines 35-38 and lines 45-59).

Ng also discloses the structure of relational database based on the database schema (col. 4, lines 23-27).

Ng although teaches the structure of relational database based on the internal data structure, also known as database data structure, representing the schema of relational database and be enabled change such as add a column (col. 4, lines 32-45).

it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize the teachings of Ng for changing the structure of relational database by database administrator and integrating to the database system (col. 4, lines 45-54) in the deletion of object from an object-relational system in a customizable and database independent manner environment.

With respect to claims 21 and 24, Ng discloses wherein generating the class object includes encapsulating information identifying the structure of the relational database and the one or more delete actions and discloses wherein the structure of the relational database and the one or more delete actions are determined from a file describing the structure and delete actions for tables in the relational database (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17; also see fig. 9; and col.7, lines 16-26).

Claim 27 is essentially the same as claim 20 except that it is directed to a system rather than a method (col. 8, lines 64-67 and col. 9, lines 11-20; database schema of a relational database: col. 4, lines 23-27 and lines 35-36; abstract, col. 2, lines 36-49; col. 4, lines 22-54; also see col. 3, lines 35-38 and lines 45-59), and is rejected for the same reason as applied to the claim 20 hereinabove.

Claim 28 is essentially the same as claim 21 except that it is directed to a system rather than a method (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17; also see fig. 9), and is rejected for the same reason as applied to the claim 21 hereinabove.

Claim 35 is essentially the same as claim 20 except that it is directed to a computer product rather than a method (col. 8, lines 64-67 and col. 9, lines 11-20; database schema of a relational database: col. 4, lines 23-27 and lines 35-36; abstract, col. 2, lines 36-49; col. 4, lines 22-54; also see col. 3, lines 35-38 and lines 45-59), and is rejected for the same reason as applied to the claim 20 hereinabove.

Claim 36 is essentially the same as claim 21 except that it is directed to a computer product rather than a method (col. 3, lines 62-67 and col. 7, lines 60-67 and col. 8, lines 1-17; also see fig. 9), and is rejected for the same reason as applied to the claim 21 hereinabove.

With respect to claim 43, Ng discloses a meta-information class for determining a structure of the relational database and one or more delete actions based on the structure of the relational database; and a database meta-information generator class for generating the class object based on the determined structure and the determined

one or more delete actions (col. 8, lines 64-67 and col. 9, lines 11-20; database schema of a relational database: col. 4, lines 23-27 and lines 35-36; abstract, col. 2, lines 36-49; col. 4, lines 22-54; also see col. 3, lines 35-38 and lines 45-59).

Ng also discloses the structure of relational database based on the database schema (col. 4, lines 23-27).

Ng although teaches the structure of relational database based on the internal data structure, also known as database data structure, representing the schema of relational database and be enabled change such as add a column (col. 4, lines 32-45).

it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize the teachings of Ng for changing the structure of relational database by database administrator and integrating to the database system (col. 4, lines 45-54) in the deletion of object from an object-relational system in a customizable and database independent manner environment.

With respect to claim 46, Ng discloses determining a structure of the relational database; determining one or more default delete actions based on the structure of the relational database; receiving user input to modify the one or more default delete actions; and generating the class object based on the determined structure, the determined one or more delete actions and the user input (col. 8, lines 64-67 and col. 9, lines 11-20; database schema of a relational database: col. 4, lines 23-27 and lines 35-36; abstract, col. 2, lines 36-49; col. 4, lines 22-54; also see col. 3, lines 35-38 and lines 45-59).

Ng also discloses the structure of relational database based on the database schema (col. 4, lines 23-27).

Ng although teaches the structure of relational database based on the internal data structure, also known as database data structure, representing the schema of relational database and be enabled change such as add a column (col. 4, lines 32-45).

it would have been obvious to a person of ordinary skill in the art at the time the invention was made to utilize the teachings of Ng for changing the structure of relational database by database administrator and integrating to the database system (col. 4, lines 45-54) in the deletion of object from an object-relational system in a customizable and database independent manner environment.

Contact Information

8. Any inquiry concerning this communication should be directed to Anh Ly whose telephone number is (703) 306-4527 via E-Mail: **ANH.LY@USPTO.GOV**. The examiner can be reached on Monday - Friday from 8:00 AM to 4:00 PM.

If attempts to reach the examiner are unsuccessful, see the examiner's supervisor, Kim Vu, can be reached on (703) 305-4393.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to: (703) 746-7238 (after Final Communication and intended for entry)

or: (703) 746-7239 (for formal communications intended for entry)

or: (703) 746-7240 (for informal or draft communications, please

label "PROPOSED" or "DRAFT")

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington, VA, Fourth Floor (receptionist).

Inquiries of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 305-3900.

HOSAIN T. ALAM
PRIMARY EXAMINER

AL
APR. 9th, 2003.